

AN
ESSAY
ON THE
HISTORY, PREPARATION,
AND
THERAPEUTIC USES
OF
IODINE.

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Union, N. S.

"Non morbus plerumque, sed curatio neglecta, interficit."

Philadelphia:

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ESSAY ON IODINE.



“Non morbus plerumque, sed curatio neglecta, interficit.”

THE Materia Medica has lately become enriched by many valuable accessions made by her sister science, CHEMISTRY; and among them IODINE is, perhaps, one of the most important. From the essay we are about to write, will be seen that, in IODINE we possess a most invaluable therapeutic agent; one capable of subduing some of the most intractable diseases to which our frame is liable; one, too, that if deprived of, would be a loss for which the practitioner could find no substitute. It will be our endeavour to collect all the important facts concerning this article, from every source within our reach, and thus to concentrate within the limits of this essay, every thing *intrinsically* valuable in relation to it.

For the sake of perspicuity, we shall divide our essay into three distinct *Sections*.

The first will comprise its HISTORY: including its *physical* and *chemical properties*; its *combinations*, its *nature*, &c.

The second, the **MODE OF OBTAINING IT AND ITS COMPOUNDS.**

The third, its **THERAPEUTIC APPLICATION**; including its *action upon the Animal Economy*—its *Pathological Effects*—its *Medicinal Properties*—its *Modus Operandi*, &c.

SECTION I.

HISTORY.

IODINE, we are informed, was discovered by M. Courtois, a chemist of Paris, in the year 1812. The metallic vessels that he used for procuring soda from kelp were corroded during the process, and in searching for the cause of it, he made this valuable discovery.

Specimens of the new substance were presented to M. Clement and Desormes, who were the first to investigate it and to make known its nature to the world, which they did by announcing it, through the medium of a memoir read at a meeting of the French Institute, in 1813.

Its chemical habitudes have since been ably and thoroughly investigated, by Sir F. Davy,* Gay Lussac, Vauquelin,† Colin,† Gaultier de Claubry,† and M. Pellitier.‡

IODINE may be procured from various bodies or substances, and by many different processes; its sources are abundant; Nature has scattered it through all her kingdoms, and with the torch of Chemistry, man has explored them all, and found it to exist in each.

We are informed by Majendie, that M. Balard, of Montpellier, in modifying the use of starch as a re-agent for IODINE, ascertained its existence in various marine molusea, bare and shell-

* Phil. Trans. 1814. † Ann. de Chim. ‡ Bulletin de Pharmacie, t. vi.

ed, such as the doris, the venus, the oyster, &c.; and in several polypii.* Professor Hare speaks of it as having been discovered in marine worms.†

Doctor Webster says, in his “Manual of Chemistry,” that it has been detected in various marine animals. May it not exist more or less in all animals inhabiting salt-water?

We shall next examine IODINE as a *vegetable* constituent; and here we shall find its most prolific source; it is from this kingdom that we exclusively obtain it. IODINE exists in all the species of the genus fucus of the order algæ aquatica of Linnaeus. Dr. Fyfe‡ proved it by ocular demonstration to exist in the following fuci:—

Fucus Cartilagineus	Fucus Palmatus
—— Membranaceus	—— Filum
—— Filamentosus	—— Digitatus
—— Rubens	—— Saccharinus
—— Nodosus	Ulva Umbilicalis
—— Serratus	—— Pavonia.
—— Siliquosus	—— Linza and in Sponge.

Upon adding sulphuric acid to a concentrated hot infusion of any of them, the vapour of IODINE was exhaled.

Majendie informs us in his “Formulary,” that M. Balard

* The following is M. Balard’s process:—“After having mixed the liquor which contains the IODINE with starch and sulphuric acid, slowly pour over it a small quantity of an aqueous solution of chlorine; this liquid, from its less specific gravity, does not mix with the preceding, and, at the part where they touch, a blue zone manifests itself, which, however feeble it may be, cannot be mistaken. If the vase is lightly agitated, so as to mix a part of the inferior liquid with the solution of chlorine which swims on top, the blue tint is developed in the part with which the chlorine is in contact; but if the whole is agitated together, and the two liquors completely mixed, the blue colour disappears immediately, if the chlorine is in excess.”—*Majendie’s Formulary, fifth Fr. Edit.*

† Hare’s Minutes, art. IODINE.

‡ Vid. Ure’s Chemical Dictionary.

also detected it in the *borgonia*, the *Zostera Marina*, and other marine vegetables.

Mr. Straub, of Hofwyl, has discovered IODINE in *turf*; he was led to suppose it contained it from the peculiar odour he perceived in the neighbourhood where it was burnt, and subsequent experiment decidedly confirmed his conjecture.*

The same gentleman found it also in small quantities in the cinders of the *Fucus Helminthocortus* or *Corsican moss*; and, as well as Dr. Fyfe, detected it in sponge.

We shall now say a few words as to its *mineral habitudes*.

M. Vauquelin, in the year of 1825, found IODINE in combination with silver, in a fragment of the ore of that metal.† IODINE has also been detected in mineral springs.

We are informed by Majendie, that M. Laur Angelini, of Voghera, proved with starch the presence of IODINE in the salt-waters of that place; and that the same chemist also detected it in the waters of Salles in the Voraguais. We learn from the same source, that M. Balard discovered it in the mother waters of the salt-pits supplied by the Mediterranean.

Professor Cantu, of Turin, discovered IODINE in the Sulphurous water of Castel Nuovo d'Asti. (Majendie's Formulary, ed. sixth.)

Dr. Steel, of Saratoga Springs, has lately discovered IODINE in the mineral waters of that place. It existed in the form of *Hydriodate of Soda*. Nearly all the mineral springs, says Dr. S., at this place have given indications of the presence of IODINE.

He thinks, from analogy, that the waters of Ballston contain it, though he has not yet examined them with a view to detect it.—*Journal of the Phila. College of Pharmacy*, vol. i. No. iii.

Physical and Chemical Properties and Combinations.—"IODINE is of a black gray colour, resembling plumbago, and

* Amer. Med. Recor. vol. iv.

† We may here state that M. Bustamente has found traces of IODINE in a "lead ore from the mines of Catorce."

M. Mentzel has also detected its presence "in an ore of Zinc from Upper Silesia."—See *Silliman's Journal*, vol. xvi. p. 389.

crystallized either in micaceous plates, or broad and brilliant rhomboidal plates, or long octohedrons. Its fracture is lamellated and greasy. It is very friable, and may be reduced to impalpable powder. It destroys vegetable colours, and stains the skin of a deep orange, not very permanent. Specific gravity, 4.948. Not a conductor of electricity. Melts at 225° Fahrenheit, and boils between 335 and 355° . Its taste is acrid, hot, and durable, and it acts as a poison."—*Coxe's Dispensatory*.

According to my own experiments, IODINE evaporates slowly at the ordinary atmospheric heats and those of Dr. Ure* confirm mine: nevertheless, some chemists assert that it remains permanent at the usual temperature. They, however, cannot have tried the experiment.

IODINE is rapidly volatilized under the common pressure of the atmosphere at the temperature of 350° , and gives off copious *violet* coloured fumes. It is from this circumstance that the word IODINE is derived from the greek *iodης*—*violaceus* or *violet-like*.

IODINE is sparingly soluble in water, that fluid not dissolving more than $\frac{1}{7000}$ its weight. Alcohol takes it up much more freely.

IODINE possesses properties that render it very analogous to *oxygen* and *chlorine*. With them it forms compounds resulting in acid products. With oxygen it forms Iodic acid:—with chlorine, Chloriodic acid;—and with hydrogen, Hydriodic acid.

All these acids possess properties common to all other acids. With salifiable bases they form their respective salts; constituting Iodates, Chloriodates, and Hydriodates.†

IODINE unites with the metals, by the aid of heat, forming compounds called Iodides; and with simple inflammable bodies forming Iodurets. Thus, we have the Iodide of zinc, the Iodide

* Vid. Chemical Dictionary.

† The mode of preparing the above acids and their compounds, is detailed in the next section.

of mercury, &c.—with combustibles the Ioduret of Phosphorus; Ioduret of Sulphur, &c.

With ammonia IODINE forms a detonating compound.*

As regards the chemical re-agents for IODINE little need be said. Starch appears to be the most delicate, and consequently the best test of it. They are of course reciprocal re-agents. A very minute portion of IODINE gives to a solution of starch a *dark blue* colour.

M. Lampadeust† recommends the *sulphuret of carbon* as a test for IODINE. He asserts, that “a thousandth part of IODINE gives to that fluid a fine amethystine tint.” We have before mentioned M. Balard’s process for detecting IODINE by a modification of starch.

We shall now conclude our history by pointing out more particularly, the analogy existing between IODINE, oxygen, and chlorine.

1st. IODINE is a simple, elementary, undecompounded body.

2d. It is electro-negative.

3d. It is a supporter of combustion.

4th. It destroys vegetable colours: in a word, it possesses nearly all the chemical habitudes of oxygen and chlorine.

* Journal of Science and the Arts. vol. vi.

† We might have mentioned before speaking of the tests, that IODINE forms a peculiar compound with cyanogen, to which its discoverer, M. Serullas, has given the name of *Cyanuret of Iodine*. It is in the form of long white crystals, exceedingly thin, and of a highly pungent odour; but, as it has been applied to no useful purpose, as yet, we do not conceive it worthy of further comment. For minute details concerning it, see *Majendie’s Formulary*, ed. sixth.

SECTION II.

MODE OF OBTAINING IODINE AND ITS COM- POUNDS.*

IODINE is procured by the following process.—Lixivate powdered *kelp* with cold water. Evaporate the lixivium till a pellicle forms, and set aside to crystallize. Evaporate the mother liquor to dryness, and pour upon the mass half its weight of sulphuric acid. Apply a gentle heat to this mixture, in a flask connected with a receiver, and fumes of a violet colour will arise and condense in the form of opaque crystals, having a metallic lustre, which are to be washed out of the recipient with a little water, and quickly dried upon bibulous paper. These crystals are **IODINE**.

Now in order to understand the rationale, it is necessary to know that the **IODINE** exists in the solution of *kelp* combined with hydrogen and potash, i. e. in the form of hydriodate of potash. In pouring sulphuric acid upon it, the acid unites with the base of the hydriodate, and a portion of its (the acid's,) oxygen with the hydrogen of the hydriodic acid; forming sulphite of potash and water, while the **IODINE** is liberated and escapes in the manner before described.

IODINE may also be procured in quantities from the "black ash" of the soap-makers, "the residuum of the alkaline matter used in the manufacturing of hard soaps with *kelp*." Dr. Ure has made many experiments with this substance, and the following is his process for obtaining **IODINE** from it :—

"The liquid is heated to about 230° F. and poured into a large stone ware basin, of which it should fill about one half ;

* The facts contained in this section are taken chiefly from Professor Webster's excellent "Manual of Chemistry;" to which work we refer our readers concerning any thing here related. We have, in detailing any process, used his own language.

sulphuric acid, previously diluted with its own bulk of water, is added till the liquor is saturated. On cooling the mixture a large quantity of saline crystals are found adhering to the sides and bottom of the vessel.* The cold liquid is filtered through a woollen cloth. To every 12 oz. apothecaries' measure, 1000 grains of peroxide of manganese, in powder, are added. This mixture is put into a matrass with a wide neck over which a glass globe is inverted, and heat is applied with a charcoal chauffer.† IODINE now sublimes very copiously, and is condensed in the upper vessel. As soon as it becomes warm another is to be put in its place; and thus the two may be applied in rotation, as long as the violet vapour rises. By this treatment, from 80 to 100 grains of IODINE may be obtained. It is removed from the globes as in the other process. The best subliming temperature is 232° F. U. 513."

Having detailed the usual methods of obtaining IODINE in quantities, we shall now proceed to notice the mode of preparing its acid and saline compounds.

Iodic Acid.—Iodic acid, a compound of IODINE and oxygen, was discovered about the same time by Gay, Lussac, and Sir H. Davy. When IODINE is brought into contact with the protoxide of chlorine, an immediate action ensues, its colour changes to bright orange, and a liquid is formed. By the application of a gentle heat, the orange compound of chlorine and IODINE is expelled, and a compound of oxygen and IODINE remains. This substance is a white, semitransparent, solid volatile, at 456° F; it has no smell, but a strong astringent sour taste. This is Iodic acid.

Hydriodic Acid.—This is a gaseous acid, and may be formed by a direct combination of hydrogen and the vapour of IODINE transmitted through a red-hot porcelain tube. This gas may

* "These are chiefly composed of soda, a little sulphate of potassa, and a few oblong rhomboidal plates of hydriodate of soda. Sulphur is mixed with these crystals."

† "The less diffusive flame of a lamp is apt to crack the bottom of the matrass, particularly if a large quantity of materials be employed. To prevent the heat from acting on the receiver, a thin disc of wood, having a round hole in its centre, is placed over the shoulder of the matrass."

also be obtained by the action of water on the iodide of phosphorus. Any convenient quantity of moistened IODINE is put into a small glass retort, and about one-twelfth of its weight of phosphorus is then added. An iodide of phosphorus is formed, which re-acts upon the water. Mutual decomposition ensues; the oxygen of the water unites with the phosphorus, and the hydrogen with the IODINE, giving rise to the formation of phosphoric and hydriodic acids. On the application of a moderate heat, the latter passes over in the form of a colourless gas. This acid gas is rapidly absorbed by water, forming liquid hydriodic acid. It is very sour, and smells like muriatic acid. The liquid hydriodic acid is best prepared by passing sulphuretted hydrogen through a mixture of IODINE and water: the hydrogen unites with the IODINE, and the sulphur is precipitated, and on heating and filtering the liquor, a pure solution of hydriodic acid is obtained, which may be concentrated by evaporation. Till it attains the temperature of 257° water only distils; above this point, the acid itself is volatilized, and remains stationary at $262\frac{1}{2}^{\circ}$, its density being then 1, 7.

Chloriodic Acid.—This acid is easily obtained by the direct action of chlorine upon IODINE. They unite and form crystals of a deep orange colour, deliquescent, and easily fusible and soluble.

According to Gay-Lussac, indeed, two compounds result,—the one of a fine orange-yellow colour, containing the largest proportion of chlorine, the other orange-red. Both are solid and crystalline; deliquiate when exposed to the air; are fusible into an orange liquid; and give an orange-coloured gas.

There are two other acids into which IODINE enters as a component: namely, the *Iodous* and the *Iodofluoric acids*. But as they are of minor importance, we shall pass them by and proceed to examine the *Salts of Iodine*.

Iodates and Hydriodates.—The hydriodate of potash is the salt commonly employed as a medicine; though that of soda has been found equally efficacious. The Iodate of these alkalies have been prescribed; but were found more apt to

disorder the system, and to use the language of Dr. Gairdner, "were more inert and unmanageable." They have, therefore, been laid aside, and none but the hydriodates used. The mode of preparing these salts is extremely simple and easy. They are both formed at the same time by agitating IODINE with a solution of potash or soda, as the case may be; water is decomposed, and gives origin to a very soluble hydriodate and a difficultly soluble iodate. The latter may be purified by being washed first with a little water, and afterwards with alcohol, which removes the hydriodate. The iodate remains in small white and granular crystals.

The water is decomposed by the IODINE'S uniting with its elements, giving rise to iodic and hydriodic acid, which unite with the alkali in solution, and form their respective salts. The iodate being insoluble, is precipitated in the form of crystals, while the hydriodate is held in solution: hence all that we have to do to obtain them pure, is to pour off the solution, evaporate it to dryness, re-dissolve in alcohol, and again evaporate. The iodate should be washed with alcohol previous to drying it.

The hydriodate of potash is easily made by neutralizing hydriodic acid with pure potash; but in preparing a considerable quantity of the salt as for medical use, it is desirable to dispense with the preliminary step of making the acid. With this view, the following process has been described by Dr. Turner.* "To a hot solution of pure potassa add as much IODINE as it is capable of dissolving, a deep brownish red coloured fluid will be formed, consisting of the iodate and hydriodate of potassa, together with a large excess of free IODINE. Transmit a current of sulphuretted hydrogen through the solution, until the free IODINE and iodic acid are converted into hydriodic acid, changes, which may be known to be accomplished by the liquid becoming quite limpid and colourless. The solution is then gently heated, to expel any excess

* Edin. Med. and Surg. Jour. July, 1825.

of sulphuretted hydrogen, and after being filtered, the pure hydriodic acid is exactly neutralized by pure potassa."—*Webster's Manual*.

Hydriodate of potash is highly deliquescent, and consequently should be kept in close stopped vials. The hydriodate of soda is prepared in the same manner.

There are no salts, that we are aware of, prepared with the chloriodic acid. We have yet to say something before closing this section about the *Iodides*.

The *Iodides* of *Mercury* are the only ones that have been used as internal remedies; and we shall hereafter speak of their practical application. There are two of them:—the proto-iodide and the deuto-iodide.

Proto-Iodide of Mercury. This "may be prepared by taking 100 parts of proto-nitrate of mercury in crystals, and dissolving them in 400 parts of water. This being filtered a solution of hydriodate of potash is added to it, until precipitation ceases. We thus obtain a greenish-yellow pulverent precipitate, which, being thrown on a filter, is to be carefully washed with distilled water, until the water derived from it will no longer yield a black precipitate with potass. We are then to dry, and preserve in it a close vessel, shaded from the rays of the sun. This proto-iodide is yellow, insoluble in water, and exerts no action on this fluid; it is also volatile. According to Dr. Thomson, 162 parts contain 62 of IODINE, and 100 of mercury—or 25 of mercury, and 156 of IODINE." (Magendie's *Formulary*, ed. sixth.)

Deuto-Iodide of Mercury. To prepare this IODIDE "take of the deuto-chloruret (corrosive sublimate) of mercury 70 parts, and 100 of the hydriodate of potass. Dissolve each of these separately in a sufficient quantity of distilled water; filter the two liquors, and unite them by small quantities; there will be immediately a precipitation of a red powder, which is to be collected on a filter and washed in the most careful manner with distilled water, until that which passes through the filter has no longer any taste.

The precipitate being dried is to be reduced to powder, and put into a bottle, and kept from exposure to the rays of the sun. This deuto-iodide is very soluble in the hydriodate of potass and in mercurial salts, so that care must be taken not to apply an excess of either of them. Acids and alcohol dissolve the precipitate. This preparation contains 250 parts of mercury and 312 of IODINE.

Hydriodic acid may be substituted for hydriodate of potass in the preparation of these iodides." (*Ibid.*)

There are many other Iodides; in fact there might be as many as there are metals; but as they have not been therapeutically employed, we shall dismiss them without further comment; and proceed to the most interesting part of our essay:—namely, the effects of IODINE upon the system both in its healthy and diseased condition.



SECTION III.

THERAPEUTIC APPLICATION.

[BEFORE proceeding to the application of IODINE to the cure of particular diseases, we shall take the liberty of devoting a few pages to the consideration of its effects on the system, both as a poison and as a remedy, together with the treatment for an over-dose. This will involve its *Modus Operandi*, concerning which, we shall make a few observations.

We are the more induced to notice its poisonous effects, from the fact of there having been large doses taken, both through mistake, and with a view to commit suicide.]

Action of IODINE upon the Animal Economy.

We are informed by Orfila, that he administered it to dogs in doses of one up to nearly three drachms; and the only prominent symptoms induced were vomiting, hiccup, dejected appearance, and, in one or two instances, "plaintive cries." They generally died in the space of four or five days without suffering either convulsions or paralysis.

The pathological appearances revealed by dissection, were inflammation, ulceration and softening of the mucous coat of the stomach, together with thickening and effusions of coagulable lymph about the pylorus.*

Wishing to see its effects upon the human system, this indefatigable experimenter tried it upon his own person.

He commenced by taking *two* grains of it fasting, and a very disagreeable taste with slight nausea were the only sensations he felt. The next morning he took *four* grains, and it directly produced a sense of constriction and heat in the throat which lasted a quarter of an hour, and in a little while vomited some yellow liquid-matter, which contained IODINE, and only felt slightly oppressed the rest of the day. On the following morning he took *six* grains, fasting, which immediately caused heat and constriction of the throat, nausea, eructations, salivation, and epigastralgia; at the end of ten minutes, copious bilious vomitings and slight gripes came on, which lasted an hour, but yielded to two emollient clysters. The pulse which before the experiment was at sixty, rose to a hundred and twenty-five. Respiration was but little interrupted. The free use of mucilaginous drinks, together with emollient enemata soon arrested all these symptoms.

Orfila, from the preceding data, draws the following conclusions:—

"1st. That Iodine, when introduced into the stomach in

* There is a case mentioned in the London Medical Repository, vol. xvi. p. 450; where a patient who had been taking IODINE for goitre, died; "and on opening the body, the stomach was found quite corroded."

small quantities, acts as a slight stimulant, and produces vomiting.

2nd. That in the dose of a drachm, it constantly kills in four or five days the dogs who have the œsophagus tied,* by slowly producing ulceration of the stomach.

3rd. That in the dose of two or three drachms, when the œsophagus is not tied, it acts in the same manner upon animals who do not vomit for several hours.

4th. That it rarely occasions death when it has been taken in the dose of one or two drachms, and the animals shortly after throw it up by repeated vomiting.

5th. That it appears to act in the same manner upon man, as upon dogs.

6th. That it ought to be ranked among the corrosive poisons.†

These facts show that IODINE induces the same train of physiological and pathological phenomena that all powerful irritants do when applied to the gastro-mucous surface.

Majendie informs us, in his "Formulary," that he introduced the tincture of IODINE into the veins of dogs without any apparent effect.

We shall now cite a few cases where over-doses were taken together with their treatment and results.

Dr. Gairdner informs us that a fine boy, aged ten years, did not live many hours after swallowing a tea-spoonful of the tincture of IODINE : and that a physician in London rashly prescribed it to the extent of ten grains at a dose ! the patient, a young woman, was fortunately saved by vomiting.‡

We learn from Dr. Manson, of England, that a girl, aged seventeen years, who was taking IODINE for scrofula swallowed by mistake an ounce of the tincture, which, according to his formula, contains nearly half a drachm of IODINE : it was immediately rejected by emesis and no bad effect resulted.‡

* The operator passed a ligature around the œsophagus of some of the dogs after administering the IODINE, in order to prevent it from being ejected.

† Gairdner on IODINE.

‡ Manson on IODINE.

There is a case related in the American Medical Recorder, No. lxiv ; of an attempt at suicide by taking \mathfrak{zjss} . of the solut. Potass. Hydriod.* The symptoms were immediate distress, nausea, burning and acute pain at the epigastrium ; in an hour vomiting supervened, followed by extreme agitation, continued moaning, paleness of the face, headach, and violent vertigo. The treatment consisted merely in giving warm-water to assist vomiting, enemata, gum-water for drink, and a few spoonfuls of an anti-spasmodic draught.

There is another case detailed in the North Amer. Med. and Surg. Jour., vol. vi. A lady, aged twenty-six years, of nervous temperament, attempted suicide by swallowing \mathfrak{zijss} . of the tincture of IODINE. The immediate effects were, dryness and burning of the throat, lancinating pains of the stomach, nausea, efforts at vomiting ; the face was flushed, eyes watery, pulse small and contracted, the pains of the epigastrium were exasperated by the slightest pressure, convulsive pains of the upper limbs. The treatment adopted was to excite vomiting by warm-water ; after which, was administered an anodyne draught, and an opiate plaster applied to the epigastrium, together with anodyne enemata. These remedies arrested all the symptoms, and the patient soon recovered.

Thus it appears, that as there is no "*specific antidote*" for IODINE, all we can do is, to obey that great fundamental indication commanded by all poisons—the immediate removal of it from the system, and after which be guided by general principles.

Yet IODINE, like all other energetic medicines, may, by a *gradual* augmentation of the dose, be taken with impunity in large quantities. As proof of this we may adduce the following instances :—

Dr. Gendrin exhibited \mathfrak{zj} . of Solut. Potass. Hydriod. daily, for many days, to a lady who was under his care, with signal

* The quantity of the salt is not stated, but we suppose the proportions were, \mathfrak{zj} . of the Hydriodate to \mathfrak{zj} . of water.

advantage.—*North Amer. Med. and Surg. Jour.* vol. vi. p. 401.

Dr. Edward Jenner Coxe relates a case in the same journal vol. iii., in which a lady took ℥ss. of the hydriodate of potash daily, for twenty-one days, amounting in all to one ounce two drachms and a half, without experiencing any unpleasant effects.

We shall now proceed to examine the *medicinal* virtues of IODINE:—its action on the system as a *remedy*:—in a word, its *modus operandi*. This will aptly anticipate its application to the removal of disease.

The system of vessels upon which IODINE exerts a special influence or action is doubtless the *absorbent* or *lymphatic*. This is abundantly proved *a posteriori* in the removal of disease. It is in fact by virtue of this power that it cures most of the diseases to which it is applicable.

But IODINE also influences the action of the *Secernents*, or those vessels whose function it is to deposit or reproduce, and is in direct opposition to that of the absorbents. This, I conceive, to be demonstrated from the fact, that after the absorbents have been stimulated to remove a diseased mass, it is not reproduced—and why is it not?—because those vessels that gave rise to it have had at the same time their perverted office restored, and, as a consequence, their vitiated or morbid depositions no longer take place.

Yet, IODINE, like many other remedies, acts differently, according to the quantity taken. In minute doses it is said to produce a decided *tonic* effect.

Let us now appeal to respectable authorities, and see how far their opinions will support our own.

Coindet says, that “the experience of two years upon more than *two hundred* patients, has proved to me that this remedy is one of the most energetic stimulants of the lymphatic system with which we are acquainted.*”

* See “*Coindet's Memoirs on IODINE*,” originally published in the *Bibliothèque Universelle*, but since translated by Dr. Johnson of England. We

Dr. Gairdner speaking of medicines acting on the absorbents says: "Much obscurity, however, yet rests upon the subject, and a direct medical agent on the absorbent system, whose effects are speedy, indubitable, and powerful, is a great desideratum in the art of healing. *Such an agent is IODINE.* Its effects on the absorbent system are incontrovertible." This language is highly pertinent, and expressed in a tone of no little confidence.

Dr. Manson uses the following words: "The power of IODINE over the absorbent system has been noticed by Coindet and others; it early attracted my attention, and since that time, I have had ample proof of its great power over the lymphatic system."

Next we have to say a few words concerning the virtue of IODINE as a *tonic*.

Coindet uses the following terms:—"IODINE is a stimulant; it gives tone to the stomach, and excites appetite." The same author, after speaking of using it externally and internally in scrofula, says: "I however give the preference to the latter mode, since in small doses it proves *eminently tonic*."

Professor Chapman thus expresses himself:—"That it is a most active agent, productive of a high degree of vascular action and general excitement, is universally admitted."* Dr. Chapman even ranks IODINE with the tonics, in his "Therapeutics."

Dr. Manson informs us that the *tonic* effect of IODINE was so remarkable in two sisters, who were taking it for goitre that their mother, an observing woman, who was in a weakly state at the time, consulted him as to the propriety of *her* taking it solely for its tonic effect.

Dr. M. often speaks of its *stimulating* effects also, in many parts of his work.

may here state, in order to prevent frequent repetitions throughout our essay, that it is to these memoirs we allude whenever Coindet is cited; and to the respective works of Gairdner and Manson (on IODINE) when their names are mentioned.

* *Chapman's Therapeutics, last edition. vol. 2d. Art. IODINE.*

This we conceive to be ample testimony for our purpose. IODINE also possesses *emenagogue* powers. It was first affirmed by Coindet, and the following are his words :—" If given in a certain dose, and continued for some time, it is one of the most active emenagogues with which I am acquainted." This is certainly the language of enthusiasm, and consequently is exaggerated praise.

That it has re-established the suppressed uterine secretion in cases of amenorrhœa, and restored the healthy functions of the uterus in dysmenorrhœa, cannot be denied: it has been used successfully in these complaints by many practitioners, as we shall hereafter see : but none of them have been able to coincide with Coindet in calling it " one of the most active emenagogues."

Dr. Gairdner even says that he cannot believe it possesses any power over the uterine system. This, however, is going too far, as experience proves.

It has, in our opinion, no *specific* influence over the uterus ; but like most other emenagogues, acts indirectly upon it, by imparting tone and vigour to the whole system. In this opinion we are supported by Dr. Manson.

As the menstrual fluid is a secretion, at least this is the generally received opinion, it is probable that IODINE acts beneficially by influencing the secretory function of the uterus, as it does by the whole glandular system, looking upon that organ to be of the latter nature.

It were disrespectful not to notice in this place the opinion of so high an authority as Professor Brera. This distinguished Italian practitioner published his experience of the remedy obtained in the clinical school of Padua in the year 1822.*

* Professor Brera's Essay on IODINE was originally published in the Archives Generale de Medicine : but it is said * that he combined so many medicines with the IODINE as to render the cures of nearly all the diseases in which he employed it of doubtful import : in other words, it was impossible to say whether the IODINE, or the other remedies cured the disease : for *this*

We shall merely give his views respecting its *modus agendi*, as they are rather interesting.

"IODINE," says he, "is on many accounts entitled to be classed among the *heroic* remedies, and to obtain a place by the side of mercury. Like mercury, it maintains a permanent action on the system for a considerable time after its administration has been suspended. Powerfully exciting the nervous system, it accelerates the action of the heart and arteries, and restores the functions of the sanguiferous and organic systems. It thus produces appetite, fattens the lean, and emaciates the robust ! Determining a particular action on the thyroid gland and *uterus*, it removes the enlargements of the former, promotes scanty, and lessens excessive menstruation, and even diminishes the size of the *mammæ*."*—*Saggio*, p. 83.

As IODINE seems to direct and expend its force upon the absorbent and glandular systems, I should, were I to give it any definite position in the *materia medica*, place it by the side of mercury as an *alterative*† or *deobstruent*—and along with

reason we shall not speak of the complaints in which he exhibited it, nor adduce *his* experience as confirmatory of that of others : as it is our intention not to mention a single disease or case except in which IODINE was *alone* administered, or else where *its* presence was decisively shown to be *indispensable* to the cure. [* *Johnson's Journal*, vol. iii. p. 766.]

* This last effect has more than once been observed ; and from merely remedial doses. Professor Hufeland says he has seen three cases where the *mammæ* disappeared during its use for disease.—*Amer. Med. Recor.* vol. viii. p. 624.

It is also said that men have been *castrated*, if I may so speak, from the use of IODINE. Such events are apt to create an aversion to the remedy ; but they are of extremely rare occurrence, and generally proceed from its protracted or injudicious use.

These facts demonstrate, however, its potent sway over the absorbent and glandular systems. But what remedy is there whose action is not influenced by temperament or *iodiosyncrasy* ?

† I use the term *alterative* to designate a medicine that acts upon the absorbent and glandular systems ; at the same time subverting any vitiated habit of body or morbid diathesis existing ; thus producing a salutary revolution throughout the system. That IODINE is such a medicine, experience has fully confirmed:

the metallic salts as a tonic.* I however prefer calling it with Dr. Manson a *tonic stimulant*, as it implies its capability of producing more vascular excitement than tonics properly so called. We cannot forbear noticing two very singular phenomena incident to the use of IODINE. They are mentioned by Dr. Cartwright, of Natchez, in his essay on IODINE, published in the American Medical Recorder, No. xlv.

He informs us that some patients after taking the IODINE for a short time, complain of a peculiar *itching* sensation over the surface of the body, and compare it to that which would be produced by small insects creeping on the skin, called in technical language—*Formication*.

The other effect is one produced by its external application, in the form of an unguent, and more particularly from the *Ung. Potass. Hydriod.* It causes a total loss of sensation in that part of the integuments on which it is rubbed, and sometimes extends its paralyzing influence to those parts which are supplied by the same nerves of sensation.

Dr. Manson mentions one or two cases where the former phenomenon was manifested.

We have, as yet, said nothing about the effects of IODINE upon the *nervous system*, or, rather, that group of nervous symptoms incident to its injudicious use. They were first described by Coindet, and denominated by him the "*Iodic symptoms*."

They were as follows :—"Highly accelerated pulse, palpitation, frequent dry cough, insomnia, great loss of strength, and emaciation, swelling and tremors of the lower extremities, diminution of the breasts, and a continued increase of appetite."

Dr. Gairdner says that it cannot be exhibited to certain persons so as to affect the constitution, without producing unpleasant nervous symptoms ; such as, "dimness of vision, indistinct

* Professor Chapman ranks it with the vegetable tonics, in his "Therapeutics."

hearing, fallacious touch, insomnia, breathlessness, palpitation, and all the countless forms of inward nervous derangement."

Dr. Gairdner relates, in his work, a case that strongly exemplifies the disastrous effects of IODINE when its use is pushed too far. The subject of the case was a young lady residing at Paris, to whom it was exhibited by her brother for Bronchocele, who was studying medicine at that place. The goitre was removed; but there remained a little hard lump, and in attempting to dissipate it, the remedy was urged too far.

"The symptoms were, gnawing pains at the stomach, great anxiety and oppression, emaciation, vomited frequently, severe pain in the abdomen supervened, with the most distressing thirst. Dr. Gairdner was now sent for in consequence of an alarming diarrhoea that came on in the night. He states that he found her in a truly distressing condition. She was then suffering the most excruciating pain at the stomach, with violent cramps and convulsive action of the muscles of the arms, back, and legs, without scarcely any intermission. The vomiting and purging were almost incessant. The stools were bloody, slimy, and very scanty. The matter vomited was of a dark green colour streaked with blood. The tongue was covered with a thick, dark crust. The countenance was pale and contracted, together with that peculiar expression indicative of abdominal suffering. The pulse was small, hard, frequent, and could scarcely be numbered.

Dr. Gairdner says that for ten days she was in a very doubtful state; subject to severe attacks of diarrhoea, with violent pains in the bowels. Her emaciation during this time was indeed incredible. Her arms and body were almost fleshless; her breasts, which had been large, were now perfectly flat; the calves of her legs had entirely disappeared, and her thighs were not much thicker than her wrists when in health. To use his own language,—“She was indeed a miserable monument of the effects of IODINE!”

We have thus given a hasty sketch of the symptoms of this

melancholy case, to inform the reader of the horrible ravages that IODINE is capable of committing, and thus to warn him against using it unwarily.

When any of the symptoms above described manifested themselves, the remedy was immediately laid aside, and the case treated on general principles.

But let not these facts injure the value of the remedy. It was from its abuse or empirical prescription, and not from its employment in the hands of regular practitioners.

In proof of this assertion, we have the concurrent testimony of every physician, that *we* know of, who prescribed it extensively. Dr. Manson used it in several hundred cases without ever having cause for disapproving of it. Dr. Roots, of England, says he used it in more than three hundred cases, with no injurious effects. Coindet, Drs. Gairdner, Baron, Decarro, and Professor Brera employed it extensively, and never had occasion to regret its use. We may add to these the coinciding voice of practitioners in this country. The author of this essay has often prescribed it, and can affirm the same.

Dr. Gairdner justly observes, that, "like all other powerful remedies, when not controlled by a master, its energies become a source of mischief and ruin."

Has not mercury had its victims, and ruined hundreds? Yet, what enlightened practitioner is there who will not call it an invaluable remedy?

M. Zinck says, "as soon as the tincture of IODINE became known as a cure for goitre, it was used to an enormous extent at Lausanne; it was pushed so far, that I may say, without exaggeration, the tincture of IODINE bottle occupied the place of the *bônbonnière* (sweet-meat box,) for I have seen persons carrying it about with them. With few exceptions it was in general use; some took it to prevent this dreadful affection. This medicine was procured at the shops without physician's prescriptions. I have calculated, with M. Biscoff, apothecary of our city, that at least he has used ten pounds of IODINE to prepare sufficient tincture for one year's consumption; and

other apothecaries have also sold a like quantity! This mania for IODINE had some victims; but, in general, much less mischief was done than might be expected, from the incautious manner in which the tincture was used."—*Majendie's Formula* ed. sixth, p. 92.

From this it appears, that IODINE was taken more as aliment than a powerful medicine. But, is it to be wondered at, that the reason of the ignorant should have been blinded, and their judgment shaken, upon the discovery of a remedy that could effectually triumph over so formidable a disease; and one, too, that had before challenged every agent of our art?

*Diseases to which it is Applicable.**—IODINE was first employed as a *therapeutic agent*, by Coindet, a physician of Geneva, in the year 1819. This practitioner first made his discovery known by communicating it to the Helvetian Society, held at Geneva, July 25th, 1820.

The disease in which he first employed it was *bronchocele*, or *goitre*, as it was the only complaint in which burnt-sponge had been extensively used, and which owed its specific effects in *that* disease to the IODINE which it was afterwards found to contain.

He was led to discover that IODINE was the active principle in burnt-sponge, from his having found that Russell had used in bronchocele the *Fucus Vesiculosus* under the name of *Æthiops Vegetabilis*, and, at the same time knowing that IODINE existed in the different Fuci, and that sponge was also a marine vegetable, Coindet at once thought it probable that IODINE was the sanative principle in both these marine productions. Upon trying it, his conjecture was unequivocally confirmed. It produced the most astonishing effects in *goitre*, and has since continued to be used in that disease with great success.

But IODINE, like all other valuable remedies, was soon em-

* For the formulæ of the different preparations, that we must necessarily mention in the subsequent pages, and the mode of administering them, see *Pharmaceutical Preparations of IODINE, and Rules for Administering it.*

ployed in other diseases, and has since acquired as extensive a Therapeutic Domain as any other article of the *materia medica*. As Professor Chapman justly remarks, when speaking of medicines generally, that, "limited, indeed, would be its value, were its application confined to the case only in which it was first discovered to be serviceable."—*Therapeutics*, vol. i. p. 46. Edit. Fifth.

It cannot be expected that in the subsequent pages we are to present the entire history of cases of those diseases to which IODINE has been applied; to do so would convert our essay into an octavo volume. We shall, therefore, merely mention the diseases in which it has been found decisively beneficial, and refer to the authors we shall adduce for further details.

We shall commence by noticing the diseases of the *Glandular System*:—and first, of

Bronchocele, or Goitre.—Such unparalleled powers has IODINE displayed in this disease, that it has received, by almost universal consent, the title of *Specific*.

We do not conceive it necessary to select any from among the numerous cases, except one, which have been reported as illustrative of the successful employment of IODINE in this disease, as its efficacy is too well known.

The case we are about to mention is one related by Dr. Coster,* and was cured in a most singular and ingenious manner:—*by combining the action of the Voltaic Pile with that of IODINE*.

A young man had a goitre of large size which had resisted the use of IODINE both internally and by frictions; being aware that IODINE was attracted by the positive pole, Dr. C. thought it probable that by applying IODINE on one side of the tumour, and the pole to the other, its absorption would be accelerated: the result was highly confirmatory. He performed the operation twice a day, taking care to change sides at each time of its application; i. e., in the morning he would rub the ointment on the right side of the tumour and apply the pole to

* *Chapman's Journal*, vol. vii. p. 424

the left ; and in the evening vice versa. He kept the tumour under its influence for ten or twelve minutes, and in the space of twenty days it was entirely removed. To show that the effect was not solely owing to the pile, he had previously subjected the tumour to a galvanic current, and also, to electric sparks, for many days in succession, without the least sensible effect. He used the pure IODINE ointment made in the proportion of two grains to a scruple of lard. It was the only case in which he ever adopted the above plan of treatment, but recommends physicians to give it a trial in all obstinate cases of this disease, and also of scrofula.

When used in the ordinary way, we direct together with its internal use, in bad cases, frictions twice or thrice a day, on the tumour with the ointment either of IODINE, or of hydriodate of potash : it should be rubbed with a portion about the size of a hazle-nut or more, until the unguent is absorbed. There is frequently a little, hard, knotty lump that remains after the goitre is dissipated which is often difficult and sometimes impossible to remove. Mr. Austin, of England, is in the habit of using strongly camphorated mercurial ointment for its removal. The use of IODINE ought never to be imprudently persevered in on account of it.*

Scrofula.—The ingenious Coindet observing the good effects of IODINE in bronchocele was soon led, from analogy, to use it in scrofula, which was followed by the most encouraging results. It has since been prescribed by numerous practitioners in this disease, and in all its forms with decided advantage. Here, as in goitre, it is of great benefit to apply it externally, by rubbing the ointment twice or thrice a day into the enlarged lymphatic glands.

Dr. Manson, of England, employed IODINE extensively both in hospital and private practice, and in a variety of diseases, of which we shall speak as we proceed, and among them were upwards of eighty cases of scrofula and scrofulous ophthalmia

* By consulting Dr. Manson's work on IODINE, the reader may see numerous and interesting cases of bronchocele successfully treated with IODINE.

which were treated by its internal and external use, and, in the majority, with success. Dr. M. in conclusion, uses the following words :—"I think my experience warrants me in pronouncing it to be the most powerful and energetic medicine that I have employed in the cure of these diseases."

In the ulcerated stage of this disease, together with its internal use, we may apply, with advantage, the IODINE cataplasm, or poultice to the ulcers as recommended by Professor Gibson.—*Vid.* "*Surgery*" ed. 2nd. vol. i.

Enlargement of the Mammary Glands. Most of the enlargements of these glands are of a scrofulous nature, and from analogy we might suppose that IODINE would prove beneficial. Coindet informs us that he used it with success in that "indolent enlargement of the glands of the breast consequent upon delivery."

Dr. Gairdner mentions a case where a strumous enlargement of the right breast had existed for two years ; it had resisted all the usual remedies, but was cured in six weeks by placing ℞j. of Ung. Potass. Hydriod. in the axilla of the affected side every night on going to bed.*

M. Delfix, of Morlais, relates a case of enormous enlargement of the mammæ in a female, aged thirty. When she sat down they rested upon her thighs, and would meet behind her back ! In four months and a half they were so far reduced by the use of the Ung. Potass : Hydriod., as to be only twice their natural size.†

Dr. Bayle, in the August number of the *Revue Medicale*, 1828, presents several cases of enlarged mammæ that yielded

* This is after *Scattigna's* method of using the mercurial ointment. He considers a scruple of *that* ointment placed in the axilla at night equal, in effect, to a drachm rubbed in the ordinary manner.

It may not be amiss to mention here, by way of a hint, that *Dr. Gairdner* used an ointment of squills in the same way in a case of hydrothorax, and with manifest diuretic effect, after it had failed to produce diuresis when taken internally.

Why not exhibit other remedies in the same manner ?

† Amer. Med. Record. vol. x. p. 208.

to the internal and external use of IODINE. They were mostly cases of long standing: one of eighteen years duration is mentioned; it was, however, cured.

M. Pelletan employed the following combination of IODINE with success, in a case of this complaint: "hogs lard, $\mathfrak{z}\mathfrak{j}$. Protiodide of mercury, grs. vj. Acetate of Morphia grs. viij. mix accurately. Of this, about the size of a small nut was rubbed on the diseased gland every day."*

Enlargements of the Liver and Spleen. In no other diseases, perhaps, has IODINE displayed its deobstruent and solvent powers more fully than in these. Dr. Milligan reports three inveterate cases, from the Royal Infirmary, that were completely cured in a month or two by it, after mercury had been used in vain.†

Dr. Cartwright, of Natchez, has written an interesting and highly valuable essay on the practical application of IODINE, which was published in the American Medical Recorder, No. xlv. 1828. Dr. Cartwright employed it in various diseases, of which we shall speak as we proceed. Dr. C. tells us, that Dr. Thompson, of Louisiana, informed him that he had used the IODINE with complete success in six cases of scirrhus enlargement of the spleen. Upon his authority, Dr. C. prescribed it in the same complaint, from which he obtained the most flattering success. Dr. C. relates two cases, from among others, of enlarged spleen, that were of long standing, yet yielded to IODINE, after all other remedies had failed.

M. Eusebe de Salle informs us that he treated with success, chronic enlargement of the liver, or, what is called "*liver complaint*," by Iodic frictions over the hepatic region and its internal use.—*Majendie's Formulary*, fifth Fr. edit.

Enlargements of the Testicles. We learn from the same source, and from the same authority last referred to, that he employed IODINE in the same way in chronic enlargements of the testicles, and with success.

* North Amer. Med. and Surg. Jour. vol. viii. No. xv.

† Ibid, No. xliii. 1828.

Dr. Brown, of Ohio, relates a very bad case of swelled and indurated testicle cured by IODINE after mercury and many powerful local means had failed. He used it externally as well as internally.*

IODINE has been used with the same happy effects in chronic enlargements of the *parotid* and *tonsil* glands.

Marasmus, or Diseased Mesenteric Glands. This disease generally occurs in children of a strumous diathesis. The glands of the mesentery are found enlarged and indurated.

Dr. Gairdner informs us that he employed IODINE in three cases of this disease, one of which was perfectly cured, and the other two were so much benefitted, that the patients became negligent about taking it.

M. Calloway, an eminent English surgeon, obtained the very best results from the use of IODINE in this disease.†

These are the only cases we know of, but they are sufficiently encouraging.

Scirro-Cancer. Whether IODINE has ever *radically* cured genuine carcinoma, either in its occult or open stage, is rather doubtful. We know of no instance of true glandular cancer having been completely cured by this remedy: yet, it has been employed with decisive utility. M. Greafe, jr., of Berlin, mentions a case of "*cutaneous cancer*," extending over a part of the left breast, in a female, aged fifty, where the Ung. Potass. Hydriod. was used with entire success. *Amer. Med. Record.* vol. xi.

There is another case noticed in the Journal of the Royal Institution, No. 27, in which IODINE allayed the pain, and stopped the increase of a cancerous tumour of the breast.

The curative powers of IODINE have been unequivocally displayed in that deplorable disease, *Carcinoma Uteri*. It is reported by Messrs. Hufeland and Osann, of Berlin, that great advantage was derived from it in scirrhus and cancer of the uterus. *Majendie's Formulary.*

* Western Journal of the Med. and Phys. Sciences, No. iii.

† Majendie's Formulary, fifth Fr. edit.

We learn, from the same source, that Dr. Hennemann also reported a case in which the cancer had arrived at the last stage ; there was a communication between the vagina and abdominal cavity ; and, even here, IODINE was employed with astonishing advantage. Thus, we see, that IODINE promises much in a complaint so truly formidable ; in one that has hitherto baffled all our efforts. We shall now proceed to the diseases of the *Nervous System* : and first, of

Paralysis, or Palsy. Dr. Manson was the first, we believe, who employed IODINE in this disease. This practitioner exhibited it in all the different species of palsy with equal advantage, and to whose work we refer the reader for many interesting cases.

Dr. Brown, of Ohio, relates, in the *Western Journal of the Med. and Phys. Sciences*, No. iii., an interesting case of paraplegia, cured by IODINE, after many of the usual remedies had failed. He used, in conjunction with the internal exhibition of IODINE, a liniment composed of Tinct. Iodin. Tinct. Cantharis. and Tinct. Camph. which was rubbed along the course of the spine.

Chorea Sancti Viti. From the success of IODINE in palsy, Dr. Manson was induced to try it in chorea : the results were equally encouraging. He employed it in seventy-two cases of the disease ; out of which number he gives the history of eleven cured by this remedy, and makes mention of a case of five years standing, also cured.

Dr. Peltz, of this city, prescribed it in a case of this disease with complete success. *Amer. Med. Record.* vol. xiii.

We shall hereafter speak of its *modus operandi* in the cure of these affections.

Next of the diseases of the *Generative System*. Under this head we shall include the venereal disease as common to both sexes, and those complaints peculiar to the female organization only. First, of

Gonorrhœa. M. Richond, of Strasburg, appears to have been the first who employed IODINE in the venereal disease.

His experience with it satisfactorily proves its signal efficacy. M. Richond published a memoir on the subject in the *Archiv. Gen. de Med.*, March, 1824, in which he presents numerous cases of gonorrhœa and bubo successfully treated with IODINE. He did not prescribe it until the acute inflammatory symptoms were subdued. M. Richond has since published further experience with IODINE in gonorrhœa in the *Annales de la Médecine Physiologique*, where are related twelve cases of the disease cured by IODINE.

Dr. Bell, of this city, mentions, in an interesting and practical paper on IODINE,* a few cases of gonorrhœa that confirm the experience of Richond.

Would not IODINE prove useful in obstinate Gleet? and, in that (as yet) incurable form of it, denominated by Professor Physick.—*Pin-head gleet*?

Syphilis. M. Richond, as we before remarked, used IODINE with success in venereal bubo. Dr. Bell prescribed it in many cases with like success; and Dr. Cartwright, of whom we have before spoken, tells us the same thing. IODINE has not, to our knowledge, been employed in the secondary, or constitutional forms of the disease, excepting Dr. Bell's remark, that "in ulcers of the mouth and throat, whether consecutive or syphilis, or proceeding from other causes, I have derived the very best effects from the IODINE."

The above results are strong incentives for using IODINE in all the forms of secondary syphilis; and, here it will vie with its rival mercury. Majendie states that the Iodide of mercury has been employed in syphilis; by whom, however, he does not say. It is probable it would prove a most potent remedy.

Amenorrhœa and Dysmenorrhœa. Coindet was the first to employ IODINE as an emmenagogue, and we have before stated his opinion as to its powers in this respect. He informs us that he prescribed it with entire success in a case of *chlorosis*, and thinks it would be equally serviceable in the more common form of amenorrhœa.

* Dr. Bell's paper on IODINE was published in the *North Amer. Med. and Surg. Jour.* No. xii. vol. vi.

Dr. Cartwright used it successfully in each of these complaints, and Dr. Thompson, mentioned by him, prescribed it with much effect in restoring the healthy functions of the uterus. (*Vid. Essay.*)

Dr. Bell exhibited it in several cases of amenorrhœa, and in some of them, with complete success.

Dr. Denman recommends an infusion of burnt sponge, with bark for dysmenorrhœa in cases where the "deciduous membrane" exists. *Midwifery*. chap. v. sect. iv.

Majendie prescribed IODINE in a case represented to him as suppressed menses : in three weeks afterwards abortion took place. *Formulary*, sixth Fr. Edit.

These facts entitle the remedy to more than ordinary notice.

Leucorrhœa, or Fluor Albus. In this disease, IODINE has not failed to do good. Dr. H. A. Goeden cured two cases of it, of six years' duration, with IODINE.* Dr. Bell says, that he used it in several cases of leucorrhœa, "with speedy and permanently beneficial effects."

Dr. Gimelle, of Paris, also employed IODINE with great effect in leucorrhœa of long standing.† The author of this essay has, also, witnessed its good effects in chronic leucorrhœa.

We may here state, that a respectable practitioner, of this city, informed us that he prescribed IODINE with success, in a case of Atonic Menorrhagia, after other remedies had failed.

Dropsy of the Ovarium. Dr. Baron, in his valuable work on "*Tuberculous Diseases*" presents a case of this disease in which the use of IODINE proved wonderfully beneficial.

Dr. Gairdner asserts that he saw it exhibited in a similar case, and where the tumour had been twice tapped, in which it produced a complete cure. These are the only cases, we know of, in which the IODINE has been employed ; but they are sufficient to prove its efficacy, and to awaken the attention of the enthusiastic practitioner.

* North Amer. Med. and Surg. Jour. vol. ii. p. 412.

† Chapman's Journal, vol. vii. p. 199.

We have previously spoken of carcinoma uteri, and, having concluded our remarks on the diseases of this system, we shall proceed to notice those of the *Dermoid Tissue*.

IODINE unquestionably exerts considerable influence on this tissue as is demonstrated by the removal of disease located in it. Dr. Gimelle,* of Paris, and Dr. Kolley,† of Germany, have employed it with entire success in diseases which they term "*Dartres*." Dr. Goeden observed, while using IODINE in several cases of scrofula, that it also cured the *Tinea Capitis* with which the patients were at the same time affected.‡

Dr. Manson mentions a patient who had *Leprosy*, together with bronchocele, and while under the use of IODINE for the latter disease, was cured of the former.

Dr. Biett speaks in the highest terms of the Iodide of Sulphur in cutaneous affections. He has witnessed its good effects in *Psoriasis*; *Tinea Favosa*; and *Acne Rosacea*.

Dr. Biett used it as an external application, mixed with any fatty substance in the proportion of a 16th, a 20th, or a 25th part.§ A physician of this city has informed me that he used the IODINE with great advantage in a case of *Psoriasis Inveterata*.

From the above facts we are justified to expect much from the agency of IODINE in the untractable diseases of the skin. We here possess the great advantage of employing it externally, in a way hereafter to be pointed out, as well as internally.

We shall now proceed to notice some particular diseases in which IODINE has been prescribed with acknowledged utility, and frequently with entire success. First, of

Phthisis Pulmonalis. Dr. Baron relates, in his work already spoken of, a case in which there was the most conclusive evidence of the existence of tubercles in the lungs. After

* Majendie's Formulary.

† Vid. appendix to Coindet's Memoirs on IODINE.

‡ North Amer. Med. and Surg. Jour. vol. ii.

§ Ibid, vol. v. p. 452.

having used the ordinary remedies in vain, he resolved upon trying IODINE, and the result was highly flattering: it gradually meliorated all the symptoms, and finally restored the patient's health. Dr. B. also exhibited it in some desperate cases of this disease, but without relief; owing to their being too far advanced to be remediable. He, therefore, thinks that IODINE is applicable to cases of incipient phthisis only where extensive disorganization has not supervened.

Dr. Gairdner's experience with IODINE in pulmonary consumption coincides with that of Dr. Baron's. He prescribed it in a case where he had ample proof of the presence of tubercles, and with marked success. He also employed it in some advanced cases without benefit, and, sometimes, even with aggravation of the symptoms.

Mr. Austin and Dr. Roots, of England, employed our remedy in tubercular phthisis; but without any apparent advantage: indeed, it produced, in two instances, hæmoptysis. (Appendix to Coindet's Memoirs.)

We will here transcribe a prescription from the "Formulaire of Majendie, used by M. de Fermon, in a case of phthisis, with great service; not so much to illustrate the powers of IODINE as to show how happily it may be combined with other remedies, and more especially as it is for a malady so truly melancholy.

R. Lettuce Water	-	-	-	-	-	-	℥iv.
Solution of Potass. Hydriod.	-	-		g ^{tt}	-		xv.
Medicinal Prussic Acid.	-	-		g ^{tt}	-		x to xv.
Syrup. Marshmallows.	-	-	-	-	-		℥j.

A tea-spoon full of this was taken every hour.

Dr Berton, of England, has lately employed the *vapour* of IODINE, as an inhalation, in this disease.* The process is as follows:—"In a flask with two tubular openings, he puts diluted sulphuric acid, and on this projects a quarter or half a grain per diem, of the hydriodate of potassa., the IODINE is promptly disengaged in the form of vapour, and this is inhaled

* North Amer. Med. and Surg. Jour. vol. viii. p. 198.

by the patient through one of the tubes of the flask. The process is repeated from four to ten times in the day, the duration of each being from four to five minutes. Dr. Berton had first assured himself of the innoxious nature of the air, loaded with IODINE vapour, by experiments on animals.* Three patients were subjected to this treatment, and were greatly benefitted : but, as Dr. B. justly observes, many more facts are still wanting to confirm its general utility.

Doubtless there is an advantage in this method:—the direct application of the remedy, as it were, to the diseased part. Nevertheless we would recommend that the constitution should be under the influence of IODINE at the same time.

Should repeated, though cautious trials, confirm the efficacy of IODINE in the cure of pulmonary tubercles, we may exult in triumphing over one of the approbria of our art—the hitherto desolating scourge of our race.

Ophthalmia. IODINE has displayed the most remarkable effects in this disease ; but more especially in that variety of it denominated *scrofulous ophthalmia*.

We before stated, when speaking of Scrofula, Dr. Manson's success with IODINE in numerous cases of the complaint : for other cases, however, confirmatory of its great efficacy in ophthalmia generally. See *Cartwright's Essay on IODINE*.

Dr. Cartwright also gives a case of *Iritis* successfully treated with IODINE. Dr. Manson and Dr. Cartwright both found the IODINE to remove Opacities of the Cornea that existed, in many of the cases, together with the ophthalmia.

Dr. Cartwright generally applied the Ung. Potass. Hydriod. twice or thrice a day to the eye-lids and neighbouring parts, and found it necessary to exhibit the remedy internally in very bad cases only. Care should be taken that the ointment does not enter the eye, as it produces violent irritation. Nearly all the cases of ophthalmia related by these two physicians had been of long duration. We may here remark that the Iodic

* In opposition to this statement, we may say that " M. A. Chevalier has had *Colic* produced, at two different times, by the vapour from large quantities of IODINE. (*Amer. Med. Record*, vol. xvi. p. 192.)

Ointment restored the sense of sight to three horses; the ocular disease, however, is not mentioned, but, we suppose it was *cataract*: if so, how worthy of a trial on the human subject. (Cartwright's Essay.)

Arthritis, or Gout. Singular as it may appear, IODINE has been employed in gout, by Dr. Gendrin, of Paris, with astonishing success. He prescribed it both in the height of the paroxysm, and during the intermission, with equal advantage. It was found particularly efficacious in removing the chronic enlargements of the joints and the articular concretions; while, at the same time, it entirely prevented the return of future paroxysms, and thus accomplished *radical* cures. Dr. Gendrin used Iodic frictions on the affected joints, together with its internal exhibition. For a statement of his cases and a detail of the above facts, see Amer. Med. Record. No. xlv. 1828.

Dr. Gendrin has, since that period, published further experience in confirmation of the utility of IODINE in Gout. He has used the remedy in different forms, "having administered it to the exterior, as well as the interior, in frictions, baths, vapours, tinctures, alkaline solution, and enema, and in no instance has he found it productive of injurious effects. In every case, the patients were cured in a few days, or their condition rapidly meliorated." (*Ibid*, No. xlv. 1829.)

Dr. Choate, of Salem, relates in the Boston Med. and Surg. Jour. No. 33, 1828, a severe case of gout which was perfectly cured by the internal and external use of IODINE.

He prescribed it on the authority of Dr. Gendrin; and whose experience it truly confirms. Should further trials be followed by similar results, we may rejoice that one of the *approbria medicorum* has at last yielded to the progressive march of our science.

What may we anticipate from our remedy in Rheumatism, especially in its obstinate chronic forms?

Fungus Articuli, or White Swelling.—Dr. Manson relates many cases of this disease wherein IODINE was used with entire success. He generally used the Iodine Liniment as an

embrocation to the diseased joints, as well as the internal exhibition of the remedy. Dr. M. mentions a case of "Dropsy of the Knee-joint" that was cured by IODINE and a vesicatory.

Dr. Gairdner details a bad case of white swelling that was communicated to him by Professor Maunoir, of Geneva, which IODINE succeeded in curing after many active remedies had failed. Majendie states, in his "Formulary," that M. Zinck reported two cases of this disease cured by IODINE.

Dr. Lugol treated the following cases taken from the records of the Hospital St. Louis, successfully with IODINE. "The patient had white swelling, with several fistulous ulcers on the knee: the leg was bent on the thigh, and utterly useless. He had also a large tubercular tumour on the right side of the face. The swelling was such, that the man could scarcely open his mouth. These tumours have entirely disappeared under the use of IODINE frictions."* M. Bayle presents cases illustrative of the efficacy of IODINE in white swelling: he used the remedy externally as well as internally. (Rev. Med. Fev. 1829.) We shall now say a few words about a disease, in many respects, closely allied to the preceding one; namely:—

Coxalgia, or Hip-Joint Disease, Dr. Manson, in his work, so frequently appealed to by us, presents *four* cases of this disease; two of which were cured, and the rest much relieved, by the use of IODINE. Dr. Bell, in a paper on IODINE, previously referred to, mentions a case of disease of the hip-joint that was successfully treated by this remedy, after other means had failed. These diseases generally bear the scrofulous taint, and, of course, that diathesis is removed, together with the local affection.

We are next to notice a few diseases in which IODINE has been employed by Dr. Manson only; and of course the credit of priority is due to that gentleman. They were as follows:—

Deafness; Dysphagia; Fistula Lachrymalis; and Spinal Distortions. 1. DEAFNESS. Dr. Manson gives several cases of

* American Journal of the Medical Sciences, vol. iv. p. 240.

deafness which were cured by IODINE. The loss of the sense in these instances depended, chiefly, upon chronic inflammation, and a thickened condition of the lining membrane of the Eustachian tube, thereby excluding the air from the cavity of the tympanum. So sanguine is Dr. M., that he says, he hopes the remedy will supercede the necessity of puncturing the membrana tympani in such cases.

2. **DYSPHAGIA.** The difficulty of swallowing arose from a contracted, thickened, and, in some instances, an ulcerated state of the œsophagus. Dr. M. relates several interesting cases of the disease that were perfectly cured by IODINE. He thinks some benefit may arise from the remedy's coming in contact with the œsophagus in the act of swallowing it, and which, I think, is not improbable, if ulceration exists.

3. **FISTULA LACHRYMALIS.** Dr. Manson speaks in the most ardent terms of the efficacy of IODINE in this disease. He presents the history of many cases that were cured by it, and says that every day's experience confirms the pre-eminent powers of the remedy in the complaint.

4. **SPINAL DISTORTIONS.** This intelligent practitioner as strenuously recommends IODINE in distortions of the spine. His success with it, in so appalling an affliction, is a sufficient reason for his warmest eulogy. He relates several cases of this disease, and in some of them even the curvature was in a great measure removed; yet, where it was not, almost invariably the local morbid action was arrested; the strumous diathesis corrected; (upon which he supposes the disease generally depends) and thus the hideous career of the affection was intercepted. Dr. Manson kept the patients at rest in a recumbent posture as much as possible during the treatment, and, together with the internal use of IODINE, he had the affected part of the spine rubbed daily with either the Iodic ointment, or liniment, and preserved an open state of the bowels. With such treatment they were generally cured in a few months by consolidation or anchylosis of the deranged vertebra taking place. The foregoing facts are deserving of the highest attention, and should prompt us to an imitation of the practice.

Dr. M. states that the Sense of Smell was restored to a patient, while under the use of IODINE, which had been lost for nearly three years. It was owing to a thickened condition of the Schneiderian membrane, resulting from chronic catarrh, thereby compressing the extremities of the olfactory filaments; and hence the *modus operandi* of the remedy is intelligible.

Varicose Veins. Dr. Gairdner mentions a case where this disease existed in the veins of all the extremities of a woman who was using the IODINE for goitre: the remedy, however, did not seem to act upon the tumour, and the Doctor thought that the abstraction of a little blood might produce the desired effect: it did so: but a result, which he did not anticipate, was, (to use his own language,) “a total and sudden disappearance of the *varix* which had commenced during pregnancy twelve years before.” This case, we conceive, is by no means conclusive: the abstraction of blood, probably, co-operated in no small degree to unload the veins: we have mentioned it as a hint to further experiment. That form of the disease in which IODINE has, in our own country, been successfully employed, is

Circocoele. Dr. Cartwright informs us, in his essay on IODINE, that he cured a case of this disease by the internal and external use of IODINE. He also states, that Dr. M’Pheeters cured two cases of circocoele, and Dr. Thompson one, with this remedy. We must here support the scrotum, and use the IODINE externally as well as internally.

Diarrhœa. By Dr. Cartwright we are told that IODINE was employed with success in an obstinate diarrhœa “Peculiar to the Southern States.” “This disease,” says he, “although somewhat similar to the diarrhœa serosa of Dr. Good, and the diarrhœa aquosa, of Hoffmann, is nevertheless essentially different from the disease described by these authors, and agrees with it only in one prominent symptom—frequent and copious evacuations from the bowels, of a watery or serous fluid.”

Be this as it may, however, the diarrhœa under consideration was one of a most fatal character, and baffled the powers of every remedy that had been prescribed. “Dr. Thompson,

of Louisiana," says Dr. C. "at length resorted to IODINE. It cured the disease speedily and effectually." No other remedy was used except ℥ss. of calomel occasionally at bed-time. Dr. Cartwright mentions a very severe case of it in which he prescribed the IODINE, on the authority of Dr. Thompson, and with complete success. Dr. C. suspects *this* diarrhœa chiefly depends upon a diseased condition of the mesenteric glands. What would be the effects of this remedy in ordinary Chronic Diarrhœa?

Chronic Ulcerations of the Tongue and Pharynx. Majendie prescribed Iodine in some inveterate cases of these affections with success: cases that were previously looked upon as incurable. For details, see Amer. Med. Record. No. xliii. 1828.

Diseased Heart. Dr. Wright, of Ohio, has detailed a very interesting case of Cardiac affection, under the title of "*Cardialgia*," and, although other remedies were used conjointly with IODINE in the treatment, yet from certain facts and events which he mentions, the pre-eminent agency of our remedy was so marked and unequivocal, that it were impossible to doubt, for a moment, the indispensable necessity of Iodine for consummating the cure.*

Cephalalgia. Dr. Gibney informs us that after using many remedies with but trifling utility in a case of this disease, he prescribed the following combination with entire success:—R. Tinct, Iodin.—℥jss. Tinct. Sennæ.—℥vss. Infus. Colomb.—℥vij. Mix. An ounce was given thrice a day. In four days the cure was perfected.† We present the above case to show that IODINE may be harmoniously, as well as advantageously, combined with other remedies.

Metritis, or Inflammation of the Uterus. Dr. Guerard relates two cases of this disease occurring after parturition, cured by hydriodate of potassa. He exhibited three grains of it in six ounces of emulsion, to be taken in the twenty-four hours. It is said not to have produced any influence on the secretion

* Amer. Med. Record. No. xliv. 1828.

† Ibid. vol. xiii. p. 239.

of milk, or on the child's health. (Horn's Archives, for July and August, 1827.) What might we expect from it in Puerperal Fever?

Dyspepsia. IODINE has been advantageously employed in dyspepsia by a European practitioner. It was given in the form of tincture, of which, "small doses were administered twice a day in some aromatic water. The effects derived from this medicine are permanent." No other remedies were used in the cure except small doses of blue-pill and aperients, occasionally, at bed-time. (Amer. Med. Record No. xlv. 1829.)

Physconia Hydatidosa. Dr. Baron relates a case of disease, to which he has affixed the above appellation, that was successfully treated with IODINE. "The abdomen," says he, "was as large as that of a woman's in the last stage of pregnancy." He also states that one or more cysts had, occasionally, burst and emptied their contents into the intestinal canal, followed by a discharge of such fluid as *hydatids* contain. Mercury and the liquor Potassæ had been unavailingly employed for a considerable time; but, under the use of IODINE with laxatives, and occasional leeching, a rapid recovery took place.*

Tuberculated Accretions of the Peritoneum. Dr. Baron mentions, in the work just referred to, a case of this disease wherein IODINE was used successfully. He employed the Ung. Potass. Hydriod. in the form of frictions over the abdomen, together with the internal exhibition of the remedy.

Fungus Hæmatodes. We extract the following case from the Amer. Med. Record. No. xlvi. 1829. "Another formidable disease," says Dr. Fahnestock, "which has combated every remedy, and defied the surgeon's knife, may be found to yield to this very active agent—fungus hæmatodes.

An incipient case came under our observation, in which the limb had not yet attained very great enlargement, but was knotted, and bore all the characteristics of the genuine fungus hæmatodes; it yielded most effectually to the tincture and unguentum." This is the only case of fungus hæmatodes we

* Illustrations of the Inquiry on Tuberculous Diseases, by Dr. Baron.

know of, in which IODINE has been exhibited. We would strongly recommend others to give the remedy an impartial trial in the disease, and cannot but indulge the hope that it will be found capable of subduing this gorgon of the appropriate.

Angina Pectoris. Dr. B. L. Oliver, of Salem, Mass., cured this disease, occurring in his own person, with IODINE. He announces the fact in a letter to the editor of the Amer. Jour. of Science and Arts. "I have now," says Dr. O., "the pleasure of stating to you, that the alarming symptoms of angina pectoris, which I have had for several years past, and which were relieved and kept at bay, by the use of a solution of the oxy-muriate of mercury, seem entirely to have yielded to the power of IODINE. I took the medicine, dissolved in alcohol, of the strength of twenty grains to the ounce, thrice in the day; beginning with six drops, and gradually increasing it to sixteen or twenty. I think that I derived as much benefit from the IODINE in a fortnight, as I had from the solution of sublimate in eleven months, and indeed I may say much more. I have never heard of the administration of IODINE in angina pectoris, until my trial of it." Dr. Oliver was induced to try the IODINE in his case from his previous knowledge of its good effects in gout:—he being of a gouty habit.

Dr. O., in a note, says:—"Besides my own case, I know of two other cases which have been relieved, and the disease at least suspended by the IODINE." (*Silliman's Journal*, vol. xvi, No. 1. 1829.)

Polysarchia, or Excessive Corpulence. Dr. Græfe, of Berlin, prescribed IODINE, with success, in a case of polysarchia. After using active depletory means, with partial relief only, he resorted to our remedy as an "emaciating agent," and with full effect.* The result of this case is, in our opinion, a satisfactory demonstration of what we have before advanced respecting the energy that IODINE imparts to the absorbents.

We have before us an interesting and practical essay, rele-

* North Amer. Med. and Surg. Jour. vol. v. p. 453.

vant to our topic, published by Mr. Buchanan, of England, and it is entitled — “*An Essay on a new mode of treatment for Diseased Joints, and the Non-Union of Fracture.*” There are, however, several other diseases mentioned, in the essay; wherein he employed the IODINE successfully, and of which we shall speak. We shall terminate our catalogue of diseases by presenting a review in miniature, (if I may use the expression,) of that essay.

Mr. Buchanan relates many cases of scrofulous inflammation of the different joints, but particularly that of the *knee* and *hip*, which he cured by the external use of IODINE. Yet there is no novelty in the practice: no new mode of treatment here: as may be seen by referring to what we have said under the head of *White Swelling*. All that is original is the manner in which Mr. B. uses, or *applies* the remedy in such cases, and which consists in applying the Tincture of IODINE to the affected joints by means of a “*Camel hair pencil, or brush.*” He moistens the whole of the inflamed part with the tincture, in this way, once or twice a day, or every other day, as the case may demand, and *does not* exhibit the remedy internally. With this treatment he was very successful. He also used it, in the same way, in a few cases of simple phlegmonous inflammation, where even pus had formed, as fluctuation was perceptible, and generally with an abatement of the pain; a removal of the inflammation; and finally the matter was absorbed.

Mr. Buchanan used the tincture in the same manner, for discussing *Buboes*, mostly venereal ones, and with marked success. In one or two instances, mercury, externally employed, had failed. He also derived the very best effects from the tincture in the cure of *Nodes*. Mr. B. says, he found the tincture of IODINE no less efficacious in arresting the progress of *Gangrene*, and in curing *Fistulas*. In the former disease he applied the tincture over the gangrenous part and a portion of the sound skin, and when the slough was detached, the application of the tincture to the ulcerated surface was of much service.

Of its powers in healing *sinuses*, our author speaks in the

highest terms. Mr. B. states that he cured two cases of *fistula* :—one existed in the *perineum*, the other in the *anus*. In *Inflammation of the Mammæ*, this practitioner used the tincture with like success. But, what is rather novel in the practice is the fact, that he applied it to the breasts, and, indeed, in many cases to the joints, while in the most acute stage of phlogosis, and always with prompt relief. In order to show the condition of the parts, and the effects of the remedy, we shall quote his own language. After speaking of the absurdity of *rubbing* Iodic ointments or liniments upon parts so highly inflamed, he says :—“Whereas the tincture may be applied to the parts in the most acute stage of inflammation, when even the mere touching of the parts, or weight of the bed-clothes create of themselves intolerable pain ; the external application will at this period, afford the most decided relief in assuaging pain however excruciating.”*

Indeed, so marked are its effects in this latter respect, (alleviating pain,) that Mr. Buchanan makes the following commentary :—“There is a remarkable phenomenon attendant on the external application of the tincture, viz. an anodyne, as well as stimulating effect, so that the patient generally feels a cessation of pain immediately after the tincture has been applied.”†

In all the above diseases Mr. B. merely applied the tincture of IODINE to the parts with a “*Camel hair pencil, or brush*,” and as frequently as we before mentioned. He says that, as a *general rule*, the parts should be leeches and the bowels opened prior to the application of the tincture.‡

We cannot but believe, however, that the tincture acts, to some extent, in relieving acute phlogosis, as an *evaporating lotion* does. Would not this mode of using it be highly serviceable in the acute stage of *Gout*, or *Rheumatism* ?

With respect to treating “*Non-Union of Fracture*” with

* Vid. Essay, p. 88.

† Ibid. p. 89.

‡ The tincture, employed by our author, was made in the proportion of ʒj. of IODINE, to ʒiij. of alcohol.

IODINE, and successfully, too, is, so far as I know of, entirely original with Mr. Buchanan. He uses the tincture precisely in the same manner here as in the diseases just spoken of—by applying it all over the parts covering the false-joint. Mr. B. mentions only two cases of the affection ;—one had succeeded a fracture of the neck of the femur—the other, that of the tibia and fibula. In both of these cases the remedy proved successful after other means had been resorted to ineffectually.

Mr. B. conceives that the cure of all these diseases is owing to the stimulating properties of the Iodic tincture : of course he must be one of those pathologists who believes that in acute inflammation, the capillaries are debilitated. Should further trials with our remedy in the non-union of fracture confirm the above statements, it may be hailed as one of the triumphs of our art, and reflects the highest credit on its discoverer.

To Mr. Buchanan is also due the credit of having first employed the IODINE in the cure of *Gangrene, Fistulas, and Nodes*.*

Having thus faithfully noticed every disease in which IODINE has been employed, we shall next enumerate a few in which, we think, from analogy, IODINE would prove beneficial.

1. That scirrhus affection of the *Prostate Gland*, occurring generally in old people, known by the name of "*Enlarged Prostate*;" "*Prostate Gland Disease, &c.*"

2. That disease of the *Thymus Gland* incident to very young children.†

* We may here state that Mr. Buchanan exhibited IODINE in diseases of the ear, particularly in scrofulous inflammation of that organ attended with purulent discharge from the meatus, with the very best effects : See his "*Illustrations of Acoustic Surgery.*" In confirmation of this I am told, by a respectable practitioner, of this city, that he used it in an inveterate case of "*Scrofulous Discharge from the Ear*" which no remedy had ever relieved : the IODINE, however, together with a seton in the back of the neck, and syringing the meatus, effected a complete cure.

† This affection of the *Thymus Gland* has, I believe, scarcely, if ever, been noticed. I know of no name for it : it consists, however, in a great enlargement of the gland, and generally proves fatal in a short time, by occa-

3. *Fungus of the Antrum Maxillare.*

4. *Cauliflower Excrescence.* and many other diseases, as, *Ozæna, Polypi of different parts, Indolent Piles, Staphylo-ma, Cataract, Lithiasis, or Gravel, Fungus of the Testicle, Elephantiasis, Phymosis and Paraphymosis, The Atonic Hæ-morrhages, Osteo-Sarcoma, Spina Ventosa, &c.*; and many others that would readily strike the intelligent practitioner, but which our time will not allow us to investigate.

Yet the voice of suffering humanity calls upon us to recommend an extension of its application to all the species or varieties of those diseases in which it has already been successfully employed : such as, *The Chronic Cutaneous Affections,*

All Kinds of Dropsy, Obstinate Ulcers of every description, Scirrhus and Cancer of any part, Chronic Inflammations of the Mucus Tissue, Inflammation of Internal Organs, Tubercles and Hydatids in any part, Ophthalmia of every variety, All Tumours, or Morbid Growths, &c. &c.

Before dismissing this interesting part of our subject, permit us to make a few more observations on the *Modus Operandi* of IODINE in the cure of disease. We have never seen an attempt, by any writer on the subject, to explain its *modus operandi*, and, therefore, the humble author of this essay, touches upon it with no little reserve. That the *modus agendi* of this, like that of almost every other remedy, is enveloped in some obscurity, cannot be denied : yet, if we are fully satisfied as to its medicinal properties, or effects,* it appears to us rather intelligible than otherwise. Admitting what we previously advanced to be the attributes of our remedy, and it seems to account for its *modus operandi* in the removal of most diseases, either in a *direct* or *indirect* manner.

Directly,—It cures all tumours, morbid growths, thickened parts, tubercles, dropsies, cutaneous affections, scirrhusities, obesity, ulcerations, leucorrhœa, dysmenorrhœa, gonorrhœa,

sioning convulsions, suffocation, &c. For some interesting cases of it, together with the autopsic appearances, see *Amer. Med. Record.* vol. xii. p. 171.

* See page 19.

&c.—by influencing immediately the absorbents and exhalents, or secernents as the case may be.

Indirectly, It cures deafness, fistula lachrymalis, &c. and also palsy and chorea :—by removing their maintaining causes, such as, a thickened state of the lining membrane of the passages in the former diseases, and tumours, or slight effusions pressing on the brain or spinal marrow ; a thickened condition of their meninges, or of the neurilima of nerves in the latter,

In circocele its modus operandi is doubtless obscure. May it not act by stimulating the absorbents, supplying the veins, to take up some portion of their almost coagulated contents, and thus aid in emptying them ? or, it may act by removing some unknown cause of pressure upon the spermatic veins.

If IODINE can cure varices of the extremities, of which we have not satisfactory proof, it must act on the same principle, as in circocele, comparing, for the sake of argument, the whole body in the former case to that of the gland in the latter.

We have presented the preceding remarks, on the modus operandi of IODINE, with feelings of diffidence ; yet, we advance them, more as suggestions than facts, and, our mind is ever open to conviction, and ready to obey the unerring mandates of truth.

———“ Si quid novisti rectius istis,

Candidus imperti ; si non, his utere mecum.”—*Hor.*

Pharmaceutical Preparations of IODINE, and Rules for Administering it. There are two methods in common use for administering IODINE ; namely, internally and externally, by friction : for these purposes we have it differently prepared ; there are the *Pills of IODINE*, the *Tincture of IODINE*, the *Solution of Hydriodate of Potass*, and the *Ioduretted Solution* of it ; for its external use we have the *IODINE Ointment*, the *IODINE Liniment*, the *IODINE Cataplasm*, and *Ointment of Hydriodate of Potass*.

It is unnecessary to occupy time in giving severally the formulæ of different authors for these preparations ; as it is merely in their proportions that they differ. We shall, however, mention those adopted by Coindet, as he was the first to use

the medicine in any shape whatever, after which, we shall present such formulæ as appear to us to be the best. Coindet's prescriptions were as follows :—

TINCTURE OF IODINE.

R. IODINE	-	-	-	-	grs. xlvij.
Sp. Vini. Rect.	-	-	-	-	℥j.
ft. Tinct.	-	-	-	-	M.

SOLUTION OF HYDRIODATE POTASS.

R. Potass. Hydriod.	-	-	-	-	grs. xlvij.
Aqua Fontan.	-	-	-	-	℥j.
ft. Solut.	-	-	-	-	M.

IODURETTED SOLUTION OF HYDRIODATE POTASS.

R. Potass. Hydriod.	-	-	-	-	grs. xxxvj.
IODINE.	-	-	-	-	grs. x.
Aqua. Fontan.	-	-	-	-	℥j.
ft. solut.	-	-	-	-	M.

Coindet added the IODINE in this formulæ to increase the activity of the solution in cases of unusual obstinacy.

OINTMENT OF HYDRIODATE POTASS.

R. Potass. Hydriod.	-	-	-	-	℥ss.
Adeps. Suillæ.	-	-	-	-	℥jss.
Cera. Alba.	-	-	-	-	℥ij.
Liquor. Potass. Caust.	-	-	-	-	g ^{tt} . ij.
ft. Ung.	-	-	-	-	M.

Coindet had not the two last articles in this formulæ originally ; but has since added them.

Our formulæ are as follows :

TINCTURE OF IODINE.

R. IODINE.	-	-	-	-	℥ss.
Sp. Vini. Rect.	-	-	-	-	℥j.
ft. Tinct.	-	-	-	-	M.

SOLUTION OF HYDRIODATE POTASS.

R. Potass. Hydriod.	-	-	-	-	℥ij.
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Aq. Fontan.	-	-	-	-	℥j.	
ft. Solut.	-	-	-	-		M.

To this add eight grains of IODINE to form the *Ioduretted Solution*.

OINTMENT OF HYDRIODATE POTASS.

R. Potass. Hydriod.	-	-	-	-	℥ss.	
Adeps. Suillæ-	-	-	-	-	℥j.	
ft. Ung.	-	-	-	-		M.

IODIC OINTMENT.

R. IODINE.	-	-	-	-	℥ss.	
Adeps. Suillæ.	-	-	-	-	℥j.	
ft. Ung.	-	-	-	-		M.

An ointment of IODINE may also be made by incorporating, with the same quantity of lard, two or three drachms of the tincture of IODINE.

IODIC LINIMENT.

R. Linimen. Saponis. Comp.	-	-	-	-	℥j.	
Tinct. Iodin.	-	-	-	-	℥j.	
ft. Linimen.	-	-	-	-		M.

This liniment may be made stronger, if requisite, by adding more of the tincture.

Iodic Cataplasm. This is made by adding the tincture of IODINE, or the IODINE itself, or the hydriodate of potass, to any of the common emollient poultices.

This cataplasm is a valuable application for *sores* of every description, while we are, at the same time, exhibiting the IODINE internally.

Iodic Pills. These are made by forming the IODINE into pills, with any suitable substance; each to contain half a grain; one to be taken twice or thrice a day. This, however, is the worst form of exhibiting the remedy, and can scarcely, if ever, be required.

As respects the tincture of IODINE, and the solution and ointment of hydriodate of potass, the three preparations most

commonly employed, are, by different practitioners, made of different strength ; but, the formulæ here presented, are about the average quantities deduced from a careful examination of many authors. In making the tincture all that is necessary, is, provided the alcohol be concentrated, to put it and the IODINE in a vial, and shake it well : if a mortar be used, it should be a glass one. This tincture should not be prepared long before it is used, as it is deteriorated by time, owing, as is said, to the IODINE attracting the hydrogen of the alcohol, and forming hydriodic acid, while some of the IODINE is precipitated, the rest going to form ioduretted hydriodic acid. We may also make an *Ethereal Tincture of IODINE*, with sulphuric ether.

With regard to the ointments, that made with hydriodate of potass is by far the most elegant preparation, and is the one generally employed : the other stains the skin of that colour peculiar to IODINE, and, is well fitted for Hospital practice. Both of these ointments should be kept in *well stopped* vessels. In prescribing either of them, we direct a small portion, say a drachm, to be rubbed on the swelling, twice or thrice a day, and the friction to be continued until the ointment disappears. Sometimes the tumour upon which it is rubbed becomes extremely tender and inflamed, particularly the skin covering it, which occasionally ulcerates ; when this occurs we should lay aside the ointment, subdue the inflammation, and then resume it.

As to the Iodic Liniment it is a most convenient and efficient remedy, as an embrocation. Dr. Manson was the first I believe to use the IODINE externally in that manner, and it is his formula we have presented.

The tincture of IODINE may, however, be combined with any of the other liniments, thus forming powerful discutients, and can always be readily prepared.

Having thus mentioned all the different modes, hitherto employed, for administering IODINE, we shall suggest two others which from analogy with mercury, appear to us might be practicable : namely,—*Inhalation*, and *Fumigation*, with the *Iodic*

*Vapour.** The former of these methods might prove useful in *Pulmonary Affections*—the latter in *Diseases of the Skin*: particularly in inveterate syphilitic eruptions, were IODINE or mercury or both combined, are at the same time, exhibited internally. We might even combine the *Iodic*, with the *Mercurial* vapour in such cases. Might not IODINE as well as Mercury, be introduced into the system by these methods?

With regard to the *administration* of IODINE we should observe the same general rules with it, as with every other active medicine;—to commence with minute doses, and gradually increase it:—to watch its affects:—to attend to the age, temperament, and immediate condition of the patient: †—to sus-

* In Justice to himself, the author of this essay presents the following note. It is perceived above that we have suggested *inhalation* as a mode of using IODINE in pulmonary complaints: nevertheless, we are fully aware that it no longer remains a suggestion; for we have already said, when treating of phthisis pulmonalis, that Dr. Berton, of Europe, has actually administered the remedy in that way, with some utility in the disease. Notwithstanding, it was with myself, as is that of fumigation, entirely original, and may likewise have been entirely so with Dr. B.; still the language made use of in our essay is faithfully copied from one that was written by me on this subject long before the time of the appearance of that Journal in which Dr. B. announces the fact. We may here state that, the manner in which I intended it to be exhibited was different from that of Dr. B's.—namely, by simply heating minute portions of IODINE in a flask and breathing the vapour diluted, if too strong by itself, with atmospheric air. This method we conceive to be more simple, and there is no hydriodic acid evolved as must be the case in Dr. B's. process.

As to the Iodic vapour in the form of fumigation, we may use it after the manner of employing the mercurial vapour. I have never heard of its having been tried.

† We cannot too strongly impress this rule on the mind of the practitioner. Many a valuable remedy has done irrevocable mischief from negligence or ignorance on the part of the practitioner in this respect:—not attending to the state of the system, and more especially, not to that of the gastric mucus tissue (for with *that* it actually comes in contact,) before prescribing his medicines. Have not mercury, bark, emetics, cathartics, rekindled the flame of disease and consumed the patient by applying them to a surface already morbidly irritated? With IODINE, injury has doubtless resulted in many cases from this *unscientific* mode of prescribing, and the remedy been unjustly stigmatized.

pend it on the manifestation of any untoward symptom &c. &c. Of the tincture of IODINE and the solution of hydriodate potass. we should commence with *six drops* of either, to an adult three times a day, about two hours after each meal, and to be cautiously augmented, say another drop every other day until we reach to the amount of twenty drops thrice a day; it may, however, by continuance, be gradually increased with safety to 25 to 30, and even to 40 drops, thrice a day; at least we know that practitioners have occasionally increased the dose to that amount with impunity. At *page 18* we mentioned cases where enormous doses were taken daily with no bad effect.

Our reason for advising it to be taken sometime after eating is, that, then it would be less apt to induce nausea, an effect frequently complained of by patients under its use. Of the two, the Solut: Potass: Hydriod: is found by experience to be far less liable, to disagree with the stomach than the tincture of IODINE, and hence it is more generally employed, especially in private practice; and should always be in delicate females. We may administer either of them in a wine-glass full or more of pure or sweetened water with a few drops of tincture of lavender, cinnamon, or mint to render it more agreeable. As the tincture of IODINE possesses a very unpleasant taste and smell it would be perhaps most palatable if taken in some one of the Aromatic Syrups. Coindet always exhibited it in Capillaire Syrup. The Solut: Potass: Hydriod: has no taste whatever.

Some may think the dose we have recommended to begin with, is unnecessarily small, but we are convinced, from what we have read, that too many practitioners are in the habit of commencing with injuriously large doses, hence, we so often hear of their having to suspend it from its inducing nausea, head-ach, febrile excitement, &c. It is, moreover, a false notion that we can hasten the cure or obtain more good from medicines of this kind by giving them in large doses: we may, indeed, obtain their poisonous effects, but not their specific constitutional sanative influence, if I may so speak.

We may say in conclusion, that while under a course of

IODINE the patient should be kept free from constipation, and that the physician must not be discouraged too hastily with its use, because there is no evident improvement: most of the diseases in which he employs it, are of a chronic character, and of course require a long and steady perseverance in it. Dr. Manson kept patients under its use in many cases of disease, particularly *palsy* and *chorea* for more than a year.

We shall now finish our essay by presenting the formulæ for administering the Iodides of Mercury.

TINCTURE OF DEUTO-IODIDE OF MERCURY.

R. Deuto Iodide Merc.	-	-	-	-	grs. xvj.
Sp. Vini. Rect.	-	-	-	-	℥xijss.
Signe.	ft. tinct.	-	-	-	M.

“It may be given to the extent of ten, fifteen, or twenty drops in a glass of distilled water, as common water readily decomposes it. It has succeeded in scrofulous complaints, complicated with syphilis.”

The Etherial Tincture is made in the same proportions; substituting sulphuric ether for alcohol.

OINTMENT OF DEUTO-IODIDE OF MERCURY.

R. Deuto Iodide Merc.	-	-	-	-	grs. xvj.
Adeps. Suillæ.	-	-	-	-	℥xijss.
	ft. ung.	-	-	-	M.

“This ointment has been highly recommended in the treatment of inveterate venereal ulcers, in which it is said to accelerate the cicatrization.”

The Ointment of the **PROTO-IODIDE** is made exactly in the same proportions.

PILLS OF DEUTO-IODIDE OF MERCURY.

R. Deuto-Iodide Merc.	-	-	-	-	gr. j.
Extract of Juniper.	-	-	-	-	grs. x.
Liquorice Powder, q. s.	-	-	-	-	M.

“To be made into eight pills: two to be taken at first, morning and evening; augmenting the dose, subsequently, to four, at the same periods.”

The Pills of the **PROTO-IODIDE** are made exactly in the same proportions, and exhibited in the same manner.

The above formulæ are taken from the latest edition of **Majendie's Formulary**. We have taken the liberty of changing them into the American form of prescription for the benefit of those who may not be in possession of that work.

IODURET OF SULPHUR.

"Sulphur and **IODINE** readily unite and form a black crystallizable compound, resembling sulphuret of antimony."
(*Webster's Manuel*, p. 176.)

This, made into an ointment with lard, is useful in *Cutaneous Diseases*.

APPENDIX.



We have chosen, for the benefit of our readers, to throw into the form of an appendix some interesting facts relevant to IODINE which have appeared since writing the foregoing essay.

M. Lugol, physician to the Saint Louis Hospital at Paris, has recently published two memoirs upon IODINE,—one on its use in scrofulous diseases,—the other on a new mode of employing it:—namely, in the form of *Baths*. In the first there is nothing original except the manner in which he administered the remedy internally, which consisted in dissolving the IODINE in distilled water and to which he gave the name of *Iodated Mineral Water*. We shall say nothing concerning it, as it appears to us an unnecessary innovation, possessing no superiority, but rather disadvantages, to preparations already possessed.

M. Lugol prepared the Iodated water because he disliked the tincture; his objections to it are well founded, and with him we perfectly agree. In mixing the tincture with any watery vehicle a portion of the IODINE is precipitated, which coming in contact with the mucous surface of the stomach produces dangerous effects: moreover, it has a disagreeable odour and a most nauseous taste. So long as we have those beautiful preparations, the *salts of IODINE*,* we want no others. Readily dissolved, colourless in solution, tasteless and without odour, we can regulate the dose with the utmost facility; prescribe it with impunity for the most delicate stomach, and which is of great importance, exhibit it to children without the least difficulty.

These are our reasons for preferring the Solution of the hydriodate of potash to either the tincture or the “*Eau minérale*

* I allude more particularly to the hydriodate of potash.

Iodée" of Lugol, which last like the former, possesses a disagreeable taste and smell, besides its liability to prove both diuretic and purgative as affirmed by himself.

We shall now say a few words concerning the IODINE Baths. As IODINE is but sparingly soluble in water, it is necessary to mix the Ioduret of Potassium* with it before putting it into the bath. The Ioduret is added only to increase the solubility of the IODINE: it does not promote the medicinal effect of the bath. M. Lugol proved this by dissolving three ounces of the hydriodate in a bath which produced little or no effect. The tincture will not answer owing to the IODINE being precipitated.

We extract the following from a review of Lugol's memoirs in the American Journal of the Medical Sciences for August, 1830:—

"In the composition of the baths for children these substances are graduated into four degrees, thus :—

	No. 1.	No. 2.	No. 3.	No. 4.
	Scruples.	Scruples.	Scruples.	Scruples.
IODINE	- - 2	- 2½	- 3	- 4
IODURET OF POTASSIUM	4 - 5	- 6	- 8	

Children from four to seven years of age take half the quantities designated in Nos. 2 and 3, dissolved in thirty-six litres† or about nine and a half gallons of water in a bath-tub about two feet in length.

Those from seven to eleven years of age, take the whole of Nos. 1, 2, and 3, dissolved in seventy-five litres, or nearly twenty gallons of water in a bath-tub two feet and a half in length.

For children from eleven to fourteen years of age, Nos. 3 and 4 are dissolved in one hundred and twenty-five litres, or about thirty-three and a quarter gallons of water, in a bath-tub three feet in length.

The composition of the baths for adults has also four degrees, being divided as follows :—

* Hydriodate of Potash.

† A measure corresponding to two pints and one-eighth nearly of our measure.

	No. 1.	No. 2.	No. 3.	No. 4.
	Drachms.	Drachms.	Drachms.	Drachms.
IODINE	-	-	2	-
			2½	-
			3	-
			3½	
IODURET OF POTASSIUM	4	-	5	-
			6	-
			7	

For young men and women, Nos. 1 and 2, are dissolved in two hundred litres, or about fifty-three gallons of water, in a bathing tub three feet and a half long.

For adult men and women, Nos. 1, 2, and 3 are dissolved in two hundred and forty litres, or sixty-four gallons of water, in a bathing tub three feet nine inches long.

The temperature of the bath was commonly made 29 or 30 degrees of Reaumur, equivalent to about 98 and 100 degrees of Fahrenheit. The length of the operation must be regulated by its sensible effects. Some cannot support the application more than half an hour, whilst others can bear it much longer. The anterior portion of the breast, with the anterior and posterior parts of the arm, are liable to become irritated, sometimes in a very high degree. The baths may be repeated two, three, or four times a week, according to circumstances. The tendency of IODINE to form chemical combinations being very strong, the common tub made of wood answers better for this purpose than those of metal."

The IODINE baths would probably prove valuable in cutaneous diseases. M. Lugol confined their use chiefly to scrofulous cases.

As there have been a few cases where IODINE is said to have produced the absorption of healthy parts, particularly the breasts in females, and thus raising an objection to the remedy, we shall quote Lugol's own language on this subject, which will show his experience on that point.

"On a dit que ce remède faisait maigrir, et qu'il diminuait l'embonpoint des femmes. Cette propriété dont on l'a doté gratuitement, a été regardée comme une raison de ne point ordonner ce remède, et de se priver de ses bienfaits. Je puis rassurer complètement les praticiens qui auraient écouté de pareilles preventions ; car je n'ai point vu de cas où l'iode ait détérioré la santé d'une manière quelconque. Loin d'être

jamais nuisible, ce remède est un puissant stimulant qui ranime les fonctions organiques, fortifie la constitution générale, favorise l'accroissement. J'ai fait la statistique des femmes scrofuleuses que j'ai traitées dans le cours de dix-huit mois, et je puis donner pour résultats généraux, 1° que les femmes maigres ont acquis de l'embonpoint ; 2° que les femmes grasses n'ont point maigri ; 3° que celles qui n'appartenaient point aux deux premières classes n'ont rien perdu de leur état moyen ; qu'elles ont même acquis plus de force et une meilleure tenue de santé." (p. 67.)

We have elsewhere spoken of IODINE as an emmenagogue.* In corroboration of its utility as such, we shall cite the following passages from Lugol :—

"Savayquerras, Mélanie Angée, tourmentées par une dysménorrhée des plus tumultueuses, ont vu leurs menstrues se régulariser, devenir plus abondantes, et elles ont conservé leur embonpoint." (p. 68.)

We shall now close our observations by extracting the following facts from the Medical Journal before alluded to :—
"Professor Dungleston," says Dr. Payne, "of the University of Virginia, has given us one case of tubercular phthisis successfully treated by the IODINE ; and more extensive experience of its use in that disease, I think could not fail to raise it higher in the scale of remedies. I have used the IODINE, continues he, in a case of chronic enlargement of the foot and leg, (which presents much the appearance of elephantiasis,) with marked benefit ; the tincture and the ointment† had not been used more than three weeks before there was considerable diminution in the sore of the foot and leg, which justifies the conclusion, that by a continuance of the same course the disease may be cured." (p. 542.)

* Page 33.

† The ointment employed was made with the hydriodate of potash in the proportion of forty-eight grains to the ounce of lard.

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